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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/401,167	09/21/1999	YUNG KU LEE	929-2	4303

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EXAMINER
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VERBITSKY, GAIL KAPLAN

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/401,167

Applicant(s)

Lee

Examiner

Gail Verbitsky

Art Unit

2859



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on May 9, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 17 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In this case, it appears, that “the rougher surface is substantially less transparent” than “the viewing area” has not been described in the specification. Apparently, the purpose of roughening the surface described in the specification is to make the light diffusely scattered and thus, to make the surface substantially nontransparent.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-3, 6, 10, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07027626 [hereinafter JP] in view of Mock et al. 4037470 [hereinafter Mock].

JP discloses in Fig. 1 a thermometer comprising a housing having an outer and an inner surfaces. The housing is made as a unitary (monolithic) structure by joining a main part of the housing and a cover 7; the housing is made of a transparent material whose surface other than a window (viewing area) 20 is coated with an opaque (increased absorptivity) member 13 (abstract). The thermometer also comprises a temperature sensor, a cover 7 and a display seen through the window (adjacent and substantially congruent to the window). In a broad sense, JP's housing can be made by injection molding because injection molding is a very well known method used to form a monolithic structure of a plastic material.

JP does not disclose an inner or outer surface to be made opaque by roughening.

Mock teaches to have an inner surface (sphere) roughened in order to increase its absorptivity, thus, to make it substantially less transparent. Mock states that in this case diffuse reflections (scattering) will occur and will be captured by the surface.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by JP so as to have the inner surface roughened in order to increase its absorptivity, as taught by Mock, because having the surface roughened or coated with an opaque coat, are alternate two ways of making the surface opaque to light, if one is replaced with the other.

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With respect to use of at least one of a mechanical or chemical treatment by exposure to abrading, etching or grinding, as stated in claim 6: JP forms the housing by injection molding. Claim 6 is a "product by process" claim since the claim language is directed to the steps required to form the housing (at least one surface). Therefore, these steps have been given no patentable weight since it has been held that 1) the determination of patentability in "product by process" claim is based on the product itself, even though such claims are limited and defined by the process, and 2) the product in a "product by process" claim is unpatentable if it is the same as, or obvious from a product of the prior art, even if the prior art product was made by a different process. **In re Thorpe et al.** 227 USPQ 964 (Fed. Cir. 1985).

With respect to the particular material, i.e., polycarbonate, as stated in claim 10: JP makes the cover part and the main part of polystyrene. To make the cover part and the main part of the housing of polycarbonate, absent any criticality, is only considered to be the use of an "optimum" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide to make the main part and the cover of the thermometer used by JP since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. **In re Leshin** 125 USPQ 416.

With respect to "whereby" as stated in claim 1: it has been held that the functional "whereby" statement does not define any structure and accordingly can not serve to distinguish. **In re Mason**, 114 USPQ 127 44 CCPA 937 (1957).

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5. Claims 4, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP and Mock as applied to claims 1-3, 6, 10, 17 above, and further in view of Takagi 4729672 [hereinafter Takagi].

JP and Mock disclose a device as stated above in paragraph 4.

They do not explicitly disclose that the housing is made by ultrasonic welding, a tip made of a metal and batteries housed within the housing, as stated in claims 4, 7, 9.

Takagi discloses in Fig. 1 a device comprising a housing made of a main part and a cover (housing batteries) part attached to each other by ultrasonic bonding (weld) and constituting, thus, a one piece (unitary/ monolithic) structure. Takagi also discloses a metal probe cap 51 for protecting the temperature sensing unit.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the monolithic housing made by injection molding disclosed by JP and Mock with a monolithic housing made by ultrasonically attaching the main part to the cover part, as taught by Takagi, because ultrasonic welding makes the housing watertight which will prevent the housing from contamination when disposed in a harsh environment.

It would have also been obvious to one of ordinary skill in the art at the time the invention was made to add a metal cap, as taught by Takagi, to the device disclosed by JP and Mock in order to protect the temperature sensing unit, as already suggested by Takagi.

It would have further been obvious to one of ordinary skill in the art at the time the invention was made to add batteries, as taught by Takagi, inside the housing disclosed by JP and

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Mock, so as to have a power supply to the thermometer in order for the thermometer to operate properly.

6. Claim 5 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over JP and Mock as applied to claims 1-3, 6, 10 and 17 above, and further in view of Plimpton.

JP and Mock disclose the device as stated above in paragraph 4.

They do not explicitly disclose an LCD as stated in claim 5.

Plimpton discloses in Fig. 1 a device comprising an LCD.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the display disclosed by JP and Mock with an LCD, as taught by Plimpton, because both of them are alternate types of displays commonly used in the temperature art which will perform the same function of giving the user a visual information about the temperature measured, if one is replaced with the other.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP and Mock as applied to claims 1-3, 6, 10 and 17 above, in view of Tseng.

JP and Mock disclose the device as stated above in paragraph 4.

They do not disclose a switch as stated in claim 8.

Tseng discloses a device in the field of applicant's endeavor comprising a switch 34 to turn the device on/off.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the switch, as taught by Tseng, to the housing of the device disclosed by JP and Mock, in order to turn the device on/off, as already suggested by Tseng.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-10 and 17 have been considered but are moot in view of the new ground(s) of rejection.

Applicant states that Mock does not allow light to get through the roughened surface as opposed to claims 1 and 17 of the present invention. However, in claims 1 and 17 applicant only states that "the rougher surface is less transparent". Therefore, the limitation the applicant relies on are not stated in the claims 1 and 17. It is the claims that define the claimed invention, and it is claims, not specification that are anticipated or unpatentable. Constant v. Advanced Micro-Devices, Inc., 7 USPQ2d 1064.

Applicant states that Mock discloses roughening for different reasons. However, as stated in paragraph # 4 of the present Office Action, Mock teaches roughening of the surface to produce and capture diffusely scattered light. Also, please refer to the prior art U.S. patents ## 6074741 and 5966108 by Murata et al. And Ditzik respectively, teaching that roughening of a surface causes a light diffusely scatter. Further, please refer to the attachment #1 to the Office Action, wherein Fig. 8. 5-4 clearly shows light diffusely scattering from a roughened surface.



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Applicant states that Mock's apparatus is directed to different invention (non-analogous art): In response to applicant's argument that Mock is non-analogous art, it has been held that the determination that a reference is from non-analogous art is twofold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *In re Wood*, 202 USPQ 171, 174. In this case, Mock solving the same problem by roughening the surface of the housing.

Applicant states that Mock's disclosure contains no suggestion to combine: In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that the references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re Mclaughlin*, 170 USPQ 209 (CCPA 1971).

Applicant also states that in the present invention some light still can get through the roughened surface. This particular limitation has not been positively claimed. It is the claims that define the claimed invention, and it is claims, not specification that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064.

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*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices.

11. Hvid et al. discloses a medical container made of a medical grade transparent plastic such as polycarbonate.

12. Any inquiry concerning this communication should be directed to the Examiner Verbitsky whose telephone number is (703) 306-5473.

Any inquiry of general nature should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

GKV

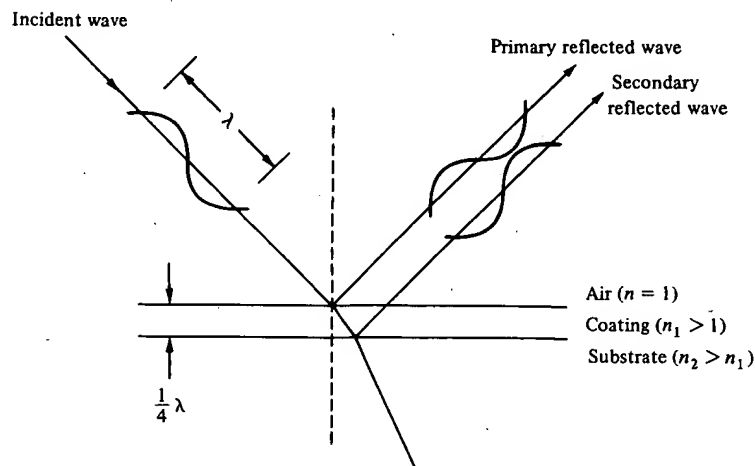
May 22, 2002



*Diego Gutierrez*

*Supervisory Patent Examiner*

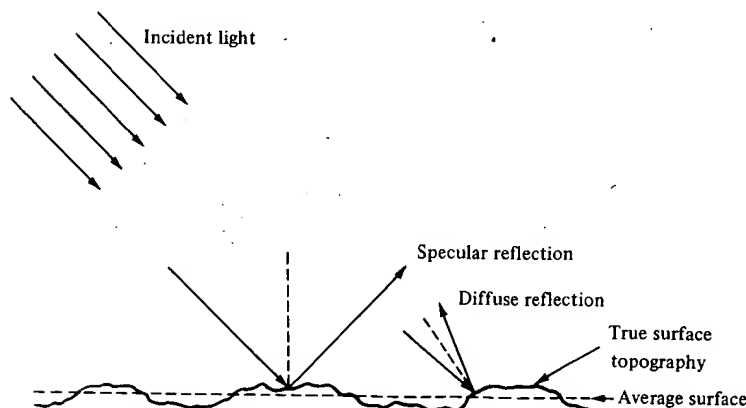
*TC 2800*



**FIGURE 8.5-3** Use of a "one-quarter wavelength" thick coating minimizes surface reflectivity. The coating has an intermediate index of refraction and the primary reflected wave is just canceled by the secondary reflected wave of equal magnitude and opposite phase. Such coatings are commonly used on microscope lenses.

The general appearance of a given material is strongly affected by the relative amounts of specular and diffuse reflection. *Specular reflection* is defined by Figure 8.5-4 as reflection relative to the "average" surface. *Diffuse reflection* as illustrated in Figure 8.5-4, is reflection due to surface roughness, where, locally, the true surface is not parallel to the average surface. The net balance between spectral and diffuse reflection for a given surface is best illustrated by *polar diagrams*. Such diagrams indicate the intensity of reflection in a given direction by the relative length of a vector. Figure 8.5-5 shows two polar diagrams, distinguishing (a) a "smooth" surface with predominantly specular reflection and (b) a "rough" surface with completely diffuse reflection. The perfectly circular polar diagram for Figure 8.5-5(b) is an example of the *cosine law* of scattering. The relative intensity of reflection varies as the cosine of the angle,  $\theta$ , defined in Figure 8.5-5(b):

$$I_{\theta} = I_0 \cos \theta \quad (8.5-3)$$



**FIGURE 8.5-4** Specular reflection occurs relative to the "average" surface, and diffuse reflection occurs relative to locally nonparallel surface elements.

A high-contrast, black and white microscopic image of a material surface, showing a complex, textured pattern of ridges, valleys, and granular features. The image is oriented diagonally, with the most detailed texture running from the top-left towards the bottom-right. The lighting creates bright highlights on the raised portions and deep shadows in the recessed areas, emphasizing the three-dimensional nature of the surface.

**James F. Shackelford**

# **Introduction to Materials Science for Engineers**

**Introduction to Materials  
Science for Engineers**

**Shackelford**